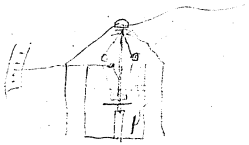
Notebook Series -- Pocket Notebooks
Notebook, PN-19-05-17

The dated entries in this pocket notebook are from May-September 1919. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the items have been crossed out. Many of the experimental entries relate to storage batteries, including notes on a self-starter battery for the Ford automobile and numerous chemical experiments. Also included are notes pertaining to the electromotograph (EMG) and chalk telephone, Lalande primary batteries, audions, disc records, and chemical paper. In addition, there are remarks on "a new cylinder process" and other entries that indicate Edison's continuing interest in improving the quality of his Blue Amberol cylinder records. Some entries are of a more speculative nature, such as an idea "for larger movie" involving four projectors focused on one large screen.

Among the business-related entries are detailed evaluations of several musicians who responded to Edison's advertisement for a pianist, including comments about their physical characteristics, ethnicity, and religion. There are also notes on plans to sell Edison Portland cement in South America, production estimates for disc phonograph cabinets, lists of inventions to be patented, and descriptions of properties near the Pennsylvania Railroad that might be suitable locations for a factory. Some entries refer to legal matters such as Edison's contracts for lithium property and a lawsuit involving John Ambrose Fleming's vacuum-tube thermionic valve. A draft telegram to industrialist Harvey Firestone discusses the upcoming camping trip in which Henry Ford and John Burroughs also participated. Some of the entries may have been made during the trip. Among the Edison employees mentioned in the book are Charles T. Dally, William W. Dinwiddie, Elmer E. Dougherty (the "works Chemist" hired in August 1919), Charles Edison, Stephen B. Mambert, John V. Miller, William J. O'Dair, Ludwig F. (Louis) Ott, and Gan C. Yee (whom Edison called "Chinaman"). The pages are unnumbered. Approximately 150 pages have been used.

Nov 17, 1919.



Drawings showing [illegible]
Electrolytic [illegible]
Viscosity [illegible]
[illegible]

~~Letter from [illegible] about the man~~
~~Chem for Coquimbo [illegible]~~
~~[illegible] balls [illegible]~~
~~[illegible] in [illegible]~~

~~Drawing of [illegible] on~~
~~the Copper Case by~~
~~using Alternate Nu~~
~~[illegible]~~

Ask Dallas ~~Dan~~ if the person was cold when he found the Green heating up in the Mould.

Look at Battery Balance Sheet.

Also phosphates, Dolomite

1/2 lb Na Arsenite to 4 gals Water -

put Current on 200

Milamp for 5 to 10 Minutes

If sol gets too old deposit green salt. could also be followed off - & new Na Arsenite added

Tell Kampfhoeft about old patent on Jul Franklin Institute Volume

Have Meadcraft look up Sciaphilia Amer about date of Electric,

1873 @ 5-6

See Wambaugh about
Drawing a BOOK that
will allow foreign
development.

Bag 3" dia 20" Long
will filter 1 Litre (1000cc)
per hour when filter
proper used
over a period of probably
10 hours or 1/2 litre per
hour 24 hours
Sure to probably work
over a period of 2 litres
hour for 24 hours
or 50 litres per bag per
24 hours - 55 filter paper

Old filter paper cloth 50cc
per 5 min. Wants new
cloth to dry well - clear
yellow sol

Door or a pickall
filter pieces anywhere
8X8 - or even 1 ft

250cc 5 mm 2 thickness
Lining hard to get used by
Cylinder Record Dept
for filtering solution
area 60 square inches
4cc per inch

300 but say 500 inches
wanted -

6 bags 3 inches Dia 4"
long

for blushing air on
Upside

New Cylinder per year
Take Dolly regular mix
& Squal it at 350 degrees
in Bre. to 3/16 coals of
same as Anderson faith
Plastic Cases Putfin another
Wood & Paper it at 350
Then varnish, oxfa. Co
Rubber Stamp & print

Legal Dept get me decision
on Marconi Flowing Valve
Case,

1 - Dimorphic - magnifying on place & discard
2 How would it do to Gillery a desk for distribute
Catalogues all workers Apps using our
Cals & Math up the Trade generally
3 Manbert fog out Eding money and spend
on bag returnable 7 / 3 4 or 5 times
Considering % recovery & returned
4 Sew a 1" band 1/3 up from bottom of
bag - also double band, triple band
& last by falling
5 JVM continue Exp Cobalt make
red by igniting Co Co Cals, Hot & Cold
leads,
6 Ask Monahan if his iron rod plungers
are not worn & if he got Crucibles for Cals to Com
7 JVM 90% Fe2O3 10% NiOH ignited & reduced
H make packets Ni metal well keep if
Considering which suffer from change
8 Lottage of Cupric oxycyl vs Sulfur
NaOH 20% also Manganate Potassium
9 - 2 Molecules Epoxy Tripx & 1 replaceable
Lead OK group glass softening -
Not oil & Lithium
10 - Harry have we [illegible] your darling again
get Mesa

11 = plate iron pockets every (km) Metal

12 Dally Point new records various Locos
pressure to get Lbs/in 100 400 500 600 700
lbs -

13 get flame compare photo record hoop
Dracus, Pythagoras etc wrapped /
play of

14 = unscrewed cylinders brass steel
this prevent full power, cold
air sucking steam makes part vacuum
don't make sense -

15 Howitt makes Lamp with
2 4cp fils in Carbon of
1 platinum spiral in middle

16 make a motor driving noise
like blowing steam Just
Can be run along the floor
away from phone to test
Volume - noise close to
Ear

17 = what is done with working
models

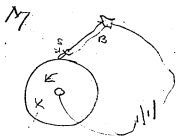
18 listen to cylinder records

19 - put Vent hole in Cylinders recorded
1/32 at end to get air
out.

20 Considerable wear tables
10 000 hours -

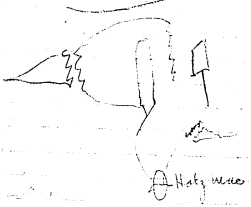
21 for cooling Cu discs
try phosphorous in olive
oil or other preferably
Volatile solvents, may want heat
also Electrically with Chloroform
Na hypophosphite Na -
Red phos also

Well Radium disabg an Electroscope
when immersed in an Electrolyte
in Than f the Collector Cell
Radium being immersed
in Electrolyte



Is which replaced B a heated
with Selenium & and resting on
which Cheek wat with
KOH & ill ray of light
of this ray strikes the Se
it makes point a Conductor
then Current will pass &
form Selenium Electrolyte
which immediately
decomposes leaves
mark —

an iron electrode Pt coated with
fine iron seemed to a plate ~~[illegible]~~
& with NaOH in KOH observe
Change of Voltage in the
dark or a ray of light
striking it — A fine series of
Experiments for all metals
Could be tried with light heat
X Radium Xyz to change
Eff especially of shutter
was used & phrase with
Ardron used to detect



Polyphon
Southwick Holly ave for Smiley

Joseph Schultz. No 1
701 South
11th St Newark
Cant remember Rush
Phonograph instrumental
so to play it —
plays it time very poorly
at 8 and — aft. 7 to 3
time Can improve

a little, Don't think
we can use him. Year big
nose, big Civil, think he
improve fairly work

Seymour Hurtt
254 W 52nd St

A Cougar, we have some
of his songs on phono
get. Cougar see his letter
plays by ear Think only
fairly well, improves
fairly and a little better
than No 1. Think he
might do if could get
better mic. Short neck
Large front teeth
Jew.

L Oth test for reg
Coffer stalling Dot
for Mitchel -

3rd Man short, bolder, your
Robert A Molino
1956 Crotona Parkway
N York.

Is somewhat raw he played
slowly by sight & gleam
Well, but couldnt play by
think Complicated music
He couldnt memorize
Kath M often learning it
twice, & didnt minutiate it
but what he did do was
Melodious Chords, he
played a vocalizing to sax
He Composed Twenty
Note work melodious
He might learn to be

useful to us if low
wages to start Think
he could Compose
his piano touch far
more melodious than
E # 1 & 2 ,

No 4 Andrew Schlesinger
540 W 125 St NY - 4th man
Remembered Kath M & improvised
only fairly well. His mind
Correspondent not very
Melodious. He failed to
played a simple wally
like No 3. Cant think
he will be no any good
Vocal - Tall Round head
Tell Weber face Semi Blind

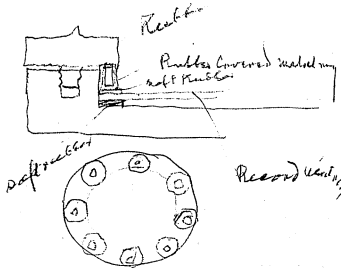
5th Man –

Scotch – short sunken
Eyes – Reads Music
perfect sight reading – one
can improvise on Cello
Cant remember a tune
tried Kalli M failed twice
Cant Compose –
If one good point good
player can sight read under
the ground floor –
Raymond A Dunn
940 Lafayette Ave
Brooklyn NY
Broad head –

6th Man
A H Hanoraff
1866 Cedar Ave NY

Plays pk by sight –
dont have perfect
interpretation of R Mounting
note but pretty good
Could not play K M
after listening never
Composed –
If wants to read is under
playing in OK & Ave.
OK
Tall man – near regular –
pin head

Charles Mountant How
about our chams
in Re Battery Lithia
Continuous Ed & Work
work – June 20 last
day



Plating Holder.

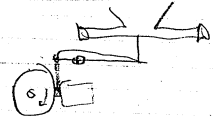
Home Sweet Home (Wood) [illegible]
by lamps - as playing Stream,
Bathroom [illegible]

Amount of Electrolyte per
bath per minute going to fether
unpleasant 190 cc
390 baths 74 Litres mean

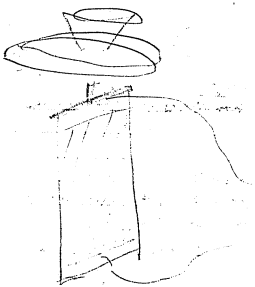
Kinchoto Lamp Easy mount
average 63 prints 24 hours
working 3 shifts - 44 prints
56 loads used
Schedule 18 men per room

Edison Valve Pat 307031
only application for Valve

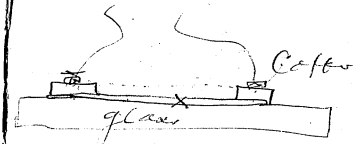
On hand 28th May
40 000 lbs Para
100 000 lbs Nelhraadamier
Sold 5400 lbs previously



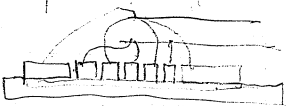
Emg Amplifier



Mica etc coated
Each area with metal
[illegible] them.
[illegible] Electrolyte of
[illegible] Conditions simplify



X is plated film of Solomon
+ Copper Eaten away
at X' decision,
[illegible] heat expands

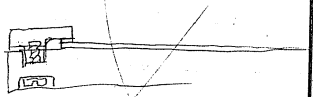


Multiple area of alus
acrid film Cu
removed by acid vents.

Flake plating

Ni Anodes around crack as now-cloth Drum covered with Copper selenium coated film, Washed out

Nickel Sol Coulaumy
Copper Sulphate Kept in Constant precipitation
Drums electrolyzed
Low Voltage deposits Copper - High Voltage deposit Ni then load for Copper + so on
Times we get film all Cu then film nearly all Nickel + some Cu + so on



See if Master is large enough to shorten it twice 1/16 each time making wkg mould 1/4" less dimensions of as Can use above. 1/8 on side

See if arsenic Antimonide Selenide, Antimonide, Sulfide times are useful. Can be worked by dipping + turned to use instead of graphite on Master does also the precipitates can be used,

Dia Mealer Malrex 10.370
" Wkg Mould 10 120
Smaller – 25.50

1/8 on side –

If Daly has trouble shaking off blocks to mould try facing Tap a bit with def metal, also dip in Sec Ar S etc

Velonde Cast common 7% Zinc with 3% of Al (or more) see if it would blend homogeneous 1/8% Na Metal –

See if Para or other organic acetate hasten Linseed oil thickening

Dimwiddie – Just some Combs effluts in Next batch Linseed oil blowed to reproduce the rubberfying phenomenon –

SB plungers may be worn in iron loading Machine

Q/VM make mix 80% 7a 20% Ni Sulfates roast reduce & Cast Ni will prevent shrinkage & act as Cords near end of dischg –

Also 75% Iron 25% Magnesia, roast & reduce this to prevent shrinkage

[25]

plate Se on point of a wire
+ see if more sensitive
than Selenium —

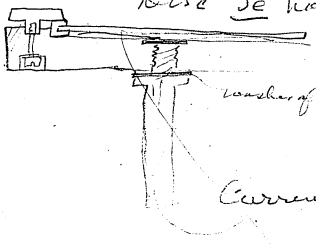
Krizman Jacobsen app
sinks 10 ft per second
independent of the depth

Hydrac acid from Petroleum
treated with fuming
Nitric acid gives a Resin
that's one 1" cube when
heated Experiments more
than Sulfuric acid (Tyndall)

Carbonize Nitric acid Crystals
dilute Sulphuric acid
Crystal for Microfone
granules, screen to size
rather organic sulfide. D Wright Melb

Make Lamp black buttons
1/4" to 3/8 dia by mixing
a very little binder of a
Carbonizable binder + then
Carbonize — Then for Mecro
as a whole + for buttons
on each side of diaphragm
holder also provide a screen
+use Lampblack granules
also Lampblk 100 mesh screen for M.
+ binder — to diminish Res

Base Se holder



Over Nickel plating 4 Volts
One Amp | 24 hours
.0035 to .004

Transfer to Copper bath
7½ Volts 12 amp 72 hours

Dress Metal finish wash
flash with Ni .0005
then transfer to iron
bath finish to
.007 - then Nickel
.0005 then Copper

Ord temp Solubility
$NiSO_4 + 7 aq$ 37.5 per 100
$FeSO_4$ " " 37.2 "
$CuSO_4 - 5 aq$ 37 "

Get Sales Calls Attorlan

Use metallic string on a
violin and a bow formed
of very fine wires —

Connect in Ceramic
using Channel Copper
records the tracks —

Patent Selenium - for
plating stripping by deposit, H by plating
another patent | Arsenic
by plating -

Patent Cathode deposing
in $NaOH$,

Patent Bowsprit Listener

Patent spring separation idea + open Hydraulic [illegible] schedule for discs -

Patent Mr plating of Conc. M Son + filtering system Cadmium with Mg Oxide -

~~[illegible]~~

Set 2 1/8" dia platinum wires very close together one adjusted by micro screw buffer sources, pass current ~~[illegible]~~ through till no current connect to electron 3 stage then let rays [illegible]

Close to points by a shutter to get around - also in chamber in which an fairly good vac. is maintained [illegible] also in presence of a very strong magnetic field while other rays are passing [illegible]

also measured in ~~electron~~ flow conducting liquids -

also in place points use dead flat discs 1/4" dia facing each other

Patent fuse machine [illegible] + other new 3 Bat things

[31]

plate film of Selenium
on a metal Cu or Ni

put in a good
Conducting Electrolyte
like KCl. insulate
the metal leaving only
the Se exposed make
it 1/4 dec.-
use anode -
then current passing
let Beam light
pass thru Electrolyte
& strike the Se.
use various thickness
of Se film -

Estimated 1 Meg Se Pt.
1" square is 15/millionths
of inch thick -

Sell Cement in Seattle
among Hom English
Exporters ~~Meerbagner~~
See Merchant -

Ask Hager for book
he recommended times in
Head 9 ~~book~~ -

Try def metals 5% soln of
sulphates with small
amounts of the metal to
make a less brittle Nickel
Zinc Copper, Cadmium
Mn, Mg, Na
also try some H_2O_2 to get
rid of H. Chromous soln -

Try $MnSO_4$ just slight acid
+ use of etc as brittle as
when neutral —

Try a little MnO_4 in it.

Try plating warm
say 110 Fahr see if brittle,

Try little Cobalt in it,

Weston says Boric acid in
$MnSO_4$ makes less brittle + can use higher density

Nd only improves a little

Try in $MnSO_4$ some NaCl

also in double sulphate try
NaCl,

Yr Mother Where is
the Nickel ore

~~Dummidder get some high grade Reprosulfite powder Acme & Crayon Rosin.~~

Try all the metals for the Selenium dip from ok Nick

Solubility

	26 pts H2O at 17°
Na [illegible]	" 34°
NH4Br	35 " 5°
K2SO4	8 " 8°
Na2SO4	21 - 16
K Oxalate	33 - 17°
NH4 Sulfate	100 34°
Li2SO4	35

Find substitute for Velvetin wiping accounts, silk, Dry Rubber sponge, oiled silk Cloth, sponge.

~~Dont forget Keep Well of making Crystalized Nickel hydroxide.~~

Copper band .003 or less thick - [illegible] with NiSO4, then H2O, then Cu then Ni again Continuously till right thick & then Cut up & whole Exhaus Cu out.

~~O Dear How do you save Ni & Cu drip Sol - Have you a filter press to use pure Ni anode~~

For larger Movie use

4 Talking & of proceeding
Mechanism, all mounted on
1 Large Screen & Cracked Tripod
[illegible]

Photo Selenium on
3 X 4 Cu plate, wash
put in Camera &
focus picture on it
then lay a photo
plate over it see if
any image — try
Arsenic Sulfide,
Tellurium also

If in Bi battery the iron
Metal finds Tray Solvent Cuts
and only Enough iron (Fe)
thin pole left the discharge
at Alumed then rapidly
grow worse, use a
depolarizer with Exces
of iron —

Shortly Cobalt also
Cd — under like
Conditions then &
thick wires or 2
wires —

take a Wi ~~[illegible]~~ ix
from a Matches &
Mechanical Dep from
this to way & then
go ahead — ~~[illegible]~~
amplify

Try strong Solenoid
dip. metals, concentrate
dip Sc, for flake also
try Hg work see dips

Extract from old data
all about Bismuth,
to prepare for fulminate
crystals —

Examine all Na OH
used in battery by
depositing on platinum
high density — scrape
off black & find what
it is — hydrogen also

See if any Nickel
salt will puff up

greatly on ignition if so
can reduce by H &
use instead of flake

fulm a Cu with its
Blue, red + Metallic
also a Dup —

Keep 3 in oven
3 at 1" above
hot plate

Y. M. Ignite ferrous
sodium oxalate
~~[illegible]~~ Reducing
H + wash out

Oxlo Ferrous Ammon Sulf

(41)

In my good second book
I say adding up capacity
of self iron plates now
+ Self heated iron

Wattefey No pyro 57%
" Self Heated 55.84

Amp Efey Iron pyro 79
" Self Heated 74.06

Load Fe. Dump Fe
then flake the Fe a as
20 dumps for melting
10 flake each dump

also by Cobalt flake

Have 2 A4 put up now
plts not corrugated by
smooth pressed + 2 A4
Corrugated Treg + run
together —

Cobalt plated iron packet
try — A4 2 of them +
not corrugated —
Cobalt is cent passive
metal in next to Fe 2nd
Co least,

A4 Cells most irons can
be brot back by fully
chg + short chg repeating
several times,

Insulance Started 896
after 1 hr 2289
" 16 " 2548
after dead chg + 16 " 3047
short chg 3 times

Bi in the Fe pockets had 100 Runs
5% Bi on about 590
10% " 1195
15% 2190
after 150 Runs
5% 15
10 25 } all gone presses
15 15 }

This apparently shows on account of solubility Bi in KOH, that must use Co or Cd or get something in alkali that prevent Bi dissolving

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Gall you need not turn back of metal masters only smooth edge + fix center of roll save time or money

Black ox Mg in tube with flake, Zinc — Chl ammonium — This should give good coll by precipitate a also hydrated Mn

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~~Li small test 1/2 tests 300 mlg bismuthine brought more up from 1400 to 1600 much — both in 21 KOH + 15% NaOH 2 Li — plates dont as big improvement —~~

~~Try Z A4 + Z check~~

~~Try Selenium~~

Take up making Na_2O_2
by dry H_2SO_4 & dry $NaOH$,
old book shows it OK
~~very~~ too much loading
not OK' see book 24 dec 17

~~See~~ looks good - use
present 1 300 at 4 pm x and
use small mixer

Test our NaOH for Gallery
still strong cleaning
current using disc
of copper & test
Sulphur out 1

I more than
take enough to mix for 1 AH
heat to 212 in ~~[illegible]~~ 18%
NaOH, electrolyzing same as
used in Cell —
Then wash wrong & make
up Cell A & test

Test the NaOH for sulphur
& other things also
electrolytically on
disc. slip of Cu

see book 16. Cobalt 30% pure
very high. Think Cumwhere a
cell all Cobalt Sulfa pocket
& get high capacity out of it
Make —

~~Always a great disc~~
~~in England~~
~~Had an [illegible] getting on~~

With platina dishes as electrodes, test out Nuff going to G/Bottle & find out the nature of the black deposit & how to get it out —

Recovered flake broaded warm very dilute Oxalic leaves a thin white deposit on the lime find out what it this is — & find something to dissolve it off — OK use apothecary

probably lime from using bad water — test Nuff for lime —

Experts stop Ni cracking Mac — Double speed of matrix in Ni plating small dust 1/2 size pulley or less — saturate the sol with crystals of double salt & raise density 50%

Also put accumulator switch in & Reverse the current for 15 seconds every 2 hours — OK WTD

Plate 6 hours Ni transfer to Copper bath & just cover with Cu every 6 hours

Fuse

Edison starting up Ni plating in Galvi room using Saturated $NiSO_4$ — 4 bags. Enough solution to cover the most of the bags which then contained enough $Ni(OH)_2$ to keep solution neutral —

Steel density 1 amp till covered then increase to 3 amp till 24 amp given on

Rig up strips of brass then deposit .01 4 inch wide 6 inches long — will varnish back except edges + use this in a plate Ni & find out how to diminish tension strip will bend bad

Try K_2O_2 in Ni bath to destroy the hydride — also some selenous acid —

Try double sulphate of ammonia + iron —

ditto mixed together with Ni double sulfate —

Bending of Wabrix when Ni is put on one side could be prevented by plating on opposite side by new Selini — a clinch near center — preventing it from crack

If can get good iron plating without cracking on bending could put on 1/1000 Ni then .003 iron then .0005 Ni —

(517)

Clean Cu strip dry then dirty finger & pickers & then dry — Then try dip in Oleum or 66° H_2SO_4 — also Chloride Zinc — Oxalic acid Conc —

Try Clean with LiOH

Gr Mellor should boil a test of Fe_2O_3 and in Sodium Hypochlorite & then test for Sulphur.

We must do something about our KOH & LiOH & NaOH, full of something which blackens the tubes & blackens Copper very quickly & also to get absorbed iron out,

Take up with Niagara people about getting KOH. as good as can get from Germany or NaOH free from sulphur.

See if iron coated with
Sel Ammon decomposes
Cu Sol & deposits Copper
Yes does

Ni Ammon Sulfate
Sol 2.53 at 20 to 50° C
39.2 at 85°

Boil Red iron in NaOH
see if sulfur comes out
also Boil hypochlorite to Ni

Test Red iron for Ni by
glyoxamine

Remove everything Can
from 30 cc NaOH 18% free
same as used & Bad,
Then remove everything by
flame of Nickel or Copper

+ test as well

Go over to studio near Hallmark
book

Burn NaOH electrolyte
up to Red heat in
platinum dish &
test Copper – this
will destroy
organics – if OK
try Nickel dish

A 4-feet Zinc hydrox
is sufficient to plate
Zinc all over no
charging, set aside
10 days & discharge
see how much longer

Get samples Sb glass sand
[illegible] for filters —

In KOH.

Zinc	separates	Tin
Tin	"	Sb
Sb	"	Pb
Pb	"	Bi
Bi	"	Fe
Fe	"	Cu
Cu	"	Ni
Ni	"	Ag

acts def in other solutions

Consider possibility of
Cracked gas $Cu(OH)_2$
for dry cell — get more
[illegible] work out dry cell Reg'ind

Possibly 18% NaOH
saturated with
sugar or starch will
prevent SBat Cell
from losing capacity
Sugar if it charges
would be best.

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to get an unlimited number
of hours pts second use
primary & in circuit
Carbon Granules passing
several sets + varry
Res if primary
for Wheatson

Save 6 female Masters
+ trickers blank and
make 6 working Mould
After that keep on making
female Masters until
Original Masters Spoiled
Mark the 2 - #1 & #2
4 rg. drip 1 every 2 pounds
slightly + let no 2
go on for 5 ~~drops~~ drips
before drip

After we make pounds
of defects repeat
Either female or
wkg Mould.

Order the 4 big Crocks
+ 3 bbls Fine sand
at once

Borax used in easily fusible
glass flux for enamels +
glazes

Also compelling iron
1 pt clay 1 feldspar 2 Borax
used in lead of lead glaze
for Crack

Metaphosphate Cu used
acids or alkalis —
Watts phosphate p 560

Dry hydrate of aluminum

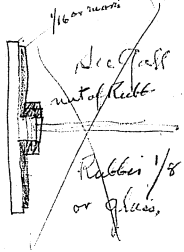
Dry pyrophosphate of
Magnesium

Frizzucia or neutral
Chop Zinc - Easily melt to
transparent glass
used in ashes

Try Ambliganite,

~~Monocalcium Phosphate~~
~~Melts~~ –

~~Cement rock~~ –



to

Jolual Solvent

Try ~~para cumarone~~
~~for varnish for~~ OK
~~back of dress~~
~~so not bleached in~~
~~Cleaning bath~~

~~Try up the 4 filter~~
~~with sulphuric~~

Also for H_2SO_4 bath

~~Try up the H_2SO_4~~
~~filter with potassium~~
~~hydroxide & heavy~~
~~platinum current,~~
~~The 3rd Rubber bath~~

Cant

Feed #1 Vall Carefully on M Points at 25.

Mac, plate N & every 8 hours reverse current for 10 seconds & deposit .005 then 2 lb wheat it alone

Fig out necessary quantities to combine with Silica Aluminum & fluorine & then add it just enough water to wet the Leadsolide & heat at 212 with reflex tube & exhaust, acc water required to exhaust to 1/2 % Dr

Increase speed due to limit of dropping solution & possibly make baffle near Cloth Bells to make cohirls

115 Rev

Test all organic acids with Lion to get an absolutely insoluble salt

Try 75 Fe SO4 & 25 Cr2(SO4)3 for Galloy & watch progress w/ Mg

Try 80% 20 Mg
85 " 15 Mg

to get a curve after

Dump the 75 & 25 Mg

Make 1 lb Each

See if anything can be done to Concentrate Lepidolite Crushing & Spro

Pho sing & plot a female metal Mash on plowing at 1/2 speed & looks HR polish again then plate a coke mould & compare with print taken [illegible]

Put piece cleaned Metal in Copper in Mash, ignited & sealed cork up without air space / glass stopper bottle full to stopper - dead paraffine. Keep out air!

Break Lepidolite up in 1/4" & put in tumbling thunk quartz up & roll grind the Lithia out - possibly leads extra quartz —

ground to $\frac{1}{4}$" meal
get yellow heat &
quench before
grinding

~~Get this done from~~
~~Rosedale~~
~~also the want~~
~~a little bottom~~

Its very desirable to
crush Lepidolite thru
180 mesh only
Allowing time
to leach at % Extracted
as compared to floated
stuff from other works

also determine the minimum
amount of lime necessary

Possibly ~~75 pts Fe &~~
~~25 pts Cerium that Ce~~
~~might account~~

~~Try 75 Fe / 25 Vanadium~~
~~Va might work~~

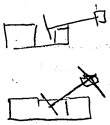
Really to try some
blanks 1/32 smaller

Send Copy letter to
Robins to Daniels. -

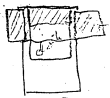
Experiment on Regeneration
of ambarella discards

Mac Start plating another
working mould in lengths
bath every 6 hours
Reverse Current for 2
Seconds only

Dally to see thinnest
Record he can make
not less than 185/1000
get weights + breaking
test



see if can increase angle
do away with jets + get
higher density in circles
Mi



raise filter on new NaSO4
plater

Process for getting Nickel Sulfate out of Ni 7% mud from Storage Gallery

1st Be sure all Nickel is Carbonated.

2nd See that Na_2SO_4 all washed out in the press.

3rd put mud just as it comes from filter press into lead lined tank with a lead lined paddle & shaft & either a lead steam coil in tank or tank steam jacked heated.

4th Add H_2SO_4 dilute probably 10% gradually the solution should have enough

Nitric acid to thoroughly peroxidize the iron & more acid is added when liquid gets neutral then run to electrolytic & continue to run until granulation and iron until it will be faintly acid to litmus. Any excess of acid will dissolve ferric iron.

The solution being finally acid will have some iron but this measures that all Ni is dissolved if after long running the iron persists in keeping faintly acid,

Run into a filter press without metals all washed by acid & wash & drain out till Na_2CO_3 shows

only slight precipitate,
The last wash which
should be light green
Can be separated from
the first strong solution
+ used to work a
second batch in the
tank at being used on
the fresh wash

5th The solution of
Nickel Sulfate is
very pure in a lead
lined iron or porcelain
kettle + boiled a small
quantity of the hydroxide
added from time to
time till all the ferric
hydroxide is thrown
out as precipitate
The Nickel solution
followed thru a
small press on

preferably bags +
Can be concentrated
~~Pure Copper w/ of some metallic iron~~
~~should be out for + recovered~~
~~before precipitating~~
Make some Fe(OH)3 mud in
water add Na2SO4 till
neutral + all Ni is
made Carbonate. boil
+ filter on Vac filter +
test for Sulfate
When OK add the acid
+ run thru process &
get Ni SO4 + Hydro off
test

Send over + get can
of Copper Mud

Ask O'Brien what he
did about the Mud
Fe(OH)3 + also ask he work
outside

Ishagh Jonstone,
am I correct that Ford is
to furnish the Company
with it as he said he would
to on last Trip, I suppose
I am to bring along Electric
Light ~~on my~~ Automobile
with head light & Chauffer
Think we should bring
along a Regular bedstead
with wide sheets & Covers
for Burroughs it will
be more comfortable for
him — I invited Sory
Daniels but he couldn't
Come —

The Girls to Open a Book
& enter all their & Hay
squad in a Book
seperate — large Book —

Send for O'Dair
after Dott has tried
plating on platina
black from Nash
& then reversing to
see if it comes off —
ask O'Dair if cells come up on
strum if they should further runs

Wire Herman about
Hard Rubber for 5 Bat

O'Dair & Charles
Monahan — Order
No change in Exchange
without my Consent

(15)

See if MgO will precipitate Ni from $NiSO_4$ —

If so QW M make some but least it might become crystalline by boiling —

Precip $Ni(OH)_2$ regular way with NaOH & varying amounts of ammonia, boil. Evap & percolate & make crystals

Also with no gases and slightly more NaOH, then after precip add H_2O_2 & boil.

Use $NiCl_2$ precip by slaked lime, just right amount, boil —

CuO plate.

MP Zinc 750° Fahr
Lead 618 "
Antimony 810 @ 1150
Sulphur 239 —

Try

Try Milled CuSulphide powdered 200 mesh & baked to MP in non oxidizing atmos

Fluoschreate K — 0.12 sol cold
" Na — 0.65
Antimonate Na, $2Na_2Sb_2O_7 \cdot 7H_2O$ 0.031 pyroantimonate slightly sol
Fluoride Zinc 13 —

Get a good work Chemist for at least year

Meadowcroft - find out where with the Chemist is now in France. I want to have him back

Assuming 3 days time necessary for producing a Matrix before starting with 1 moulder.

	M	MSM	7SM	WM	
0	1	—	—	—	—
3 days	1	1	—	—	
6	1	2	1	—	
9	1	3	3	1	
12	1	4	6	4	
15	1	5	10	10	
18	1	6	15	20	
21	1	7	21	35	
24	1	8	28	56	
27	1	9	36	84	
30	1	10	45	120	

Chinaman to use paper shell. Then nitrate it. Put over [illegible] semi dissolve

J. V. Miller moulder Red iron with a solution of Nasoff to 3½ Nasoff left and red iron then reddened by it. See if it self heats or what it does, moves 2 cells made.

Reduce red iron by charcoal or sugar — test for bullen

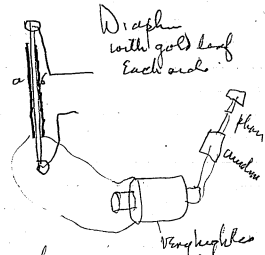
Size of old tube Nickel OH
is 20 l in $NiSO_4$ OH.

Q. Miller send me some Ni wire
not as low H_2SO_4 for platinum.

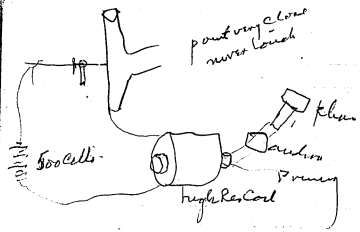
Also get sample anode wire
of Nickel from O. Bullinger
for platinum —

A man has patented a shellac
substitute. Dropped Pieces
then removed negatively from
by Thomas, Europe, etc. Patents
Measure the amount
this is from [illegible]
by Al Deck

Mass of H is 1.63×10^{-24} of gram
Electron 1830 times smaller
or 0.8×10^{-27} gram



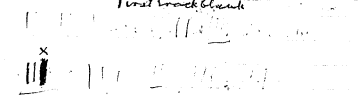
Wetted wright material Cad
in Dia should get
Electrofication Plow 1 side
N on other side
Sound in phone



Up to July 18. 1919 from old music

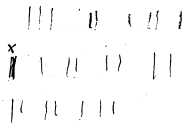
Good	415 Tunes	rated Fair
	292 "	fair to Good
	69 "	Good
	3 "	Good Good

First Track Blank



X is really the only one noticeable

2nd blank



only one really noticeable - surface only Dally 30 week is very weak to me at silence periods its 2 To 3 times louder on Reg blank to me using horn — Dally is perfectly satisfactory — I hear Mister now on account of weak Gent-sense Grace steel & funnel no angles & going as the record - Always the first time when have Good attained —

Started plating a submarine 8/4 at 4.30 pm - Cona No 504 - baguettes with stirrer at 1/2 lb of fine dry No (Off) 2 - 142 Revolution of motor 6 ampere. 8 Cells No Varnish on the back

Experts Ni plating from $NiSO_4$ keep decreasing

1st 6 amp per ½ dmsc rate, objectives.

plate 5 min wait 5 min allow hydrogen to escape

2nd plate 3 min 6 amp rate, 1 min ½ amp rate.

3rd $NiSO_4$ with 10% ferrous sulfate

4 " 25 "

5 50 " free metal of powder in sol.

7. Dimroldine Dye.

8 75 $NiSO_4$ 25 $CdSO_4$

9 = $NiSO_4$ + considerable peroxide Hydrogen

10. fine

11. $NiSO_4$ 75 $MnSO_4$ 25

12 $NiSO_4$ 75 $MgSO_4$ 25

13. Dimroldine Dye of preconcentration + 5 min plate ½ min Commercial off.

14 = Iron Anode & Ni Anode — switch Seperate with a switch, 75% $NiSO_4$ 25% $FeSO_4$ — Iron on 1/5th of the time Metalic Tacks in sol to prevent Iron

15 = Same as above but. Anode 90% of surface is Ni 10% iron, bath seperate.

16 - 75% $NiSO_4$ - 25% $ZnSO_4$

17 75 $NiSO_4$ 25 $NaSO_4$

Lelande – Try 6% of clay
Calculated as burnt, Mix of
burn at 10 to 1400°F
should have 10% of ferrous hydrate
& ferric oxide

get a Metronome + see
in what time our
Contralto sing the
times –
also have a good
time sing in Obey
Slow + then in 5
stages faster + faster

Can two Contraltos
or Contralto & Soprano
one sing 3rds to the
other + not same & above
or octave higher –

for Lelande plate
Ferrous bar & chloride –

Try 50 Barm K_2SO_4 on
Salient Map see how much
Resins formed get MgPat

M Davum 1.297 328
Resins.

Wash the hyposulfite Na
out of mixed [illegible]
have a Mallet Leather
Make 2 long lines +
test

Touch up Thow to put
8/4 on, also make up
New Solution of 8/4
also cleaning Solution
also fix up Galls Farm

Try dry Cu green hydrosp. 182 mesh & heat to 400 for binding CuO plate,

ditto 6% $Cu(OH)_2$ green & 4% Sulphur.

New foundland
Thence to Warwick
Goshen
Middletown
Wurtsboro
Eldenville
Napanoch
Wallkill
Accord
Kyserike
Hurley
Kingston
Ashokan
Phoenicia

Chichester
Lonesville
Edgewood
Tannersville
Palenville
Catskill
~~Hudson~~
Athens
Coxsackie
Albany

See P 384 to 385
Map Gilborn

Also Map Adirondacs
452

Grind some E Portland
Especially fine,
Mix with CuO & press
Then in Water 3 days

test to gelatinizing capacity
[illegible] CuO & Cement
dry then wet,

Dry Al_2O_3 – Sulfate Al,
Ignited dehydrated $CuSO_4$
& Red heat $Cu(OH)_2$
Clay at 1300 – ZnS
SbS. FeS_2. Calcopyrite
$Mg(OH)_2$ · BaS, CaS
(Pyrolusite, Nickel ox) $Ca(OH)_2$
~~$Fe(OH)_2$~~ Pumice,
Cu Silicate & $Na(OH)$,

FeS + Excess sulphur
FeS_2 + Excess sulfur
Phosphate Zn.

Dry KCy LiCy
m Eq –
KCl. KI. etc

Near Lollston, Mr Elliot
brass – sent to factory
returned and Consult
fix –

Ford Car Starting Bat

1st Measure Res of 21 + 28 Volt & Equivalent Ra Ob, to get Value of Spacing -

2 Use old graphite mix 1/32 thick or less -

3 Spot welding -

4 - see if Chloride the help Resistance and so much as to avoid

5 Weight dont matter

6 Use Cumerone with Hydrocarbon + flower of perhaps resistor, Platinum for filler

7 Cobalt may have to be used instead iron or Cd, perhaps Co for both plates, decision

5X6 10 P. 10 Neg - Cobalt plates each side 2½ 1000 oxide formed given Ford 15 plates 100 amp - 5 " 200 amp these Coupled with a 2 Reg. Battery plate battery for Lighting will do the trick -

Try Hyposulfite Lead on Plates from old Carbonal records see other Solvents - work -

Iron wire dipped in melted glass or enamel for Schenectady for Ford Stanley Cutting

Also iron wire peroxidized for Schenectady. Hammatley gave by dipping in roasted sulphate Fe powder & then bring to high heat to form Fe_2O_3

Aug 27 1919

Get some very thin asbestos cloth or paper that paste one side with $Ni(OH)_2$ other side with 200 mesh iron ppt, use second sheet to clean together light for Ford disch cutting — could see on the wire strips to allow gas to escape.

Waste heat Boiler
Cement

10 HP per 66 ft.
$160 Cost per HP Cost installed

Try Na_2NO_3 Ni as anode for making $Ni(OH)_2$
Get patent on that iron rod wood oil in Sweden

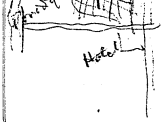
In plating Ni on Cathode to get hydroxide —
Use the Na nitrate test in addition use maximum amount of a very dil salt that will detach Hydrox as formed with Ecrystallizing in order to be very porous.

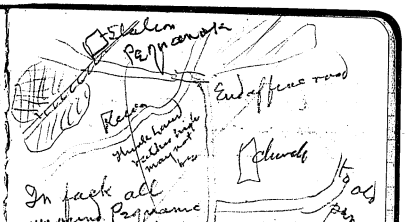
(95)

Mambert about
Autocaster test by
Lackawanna Mary.
at Scranton

Dinwiddie Mrs new
blank by Victor
process of ball
use Condensate Resin
+ 6/4 4 Parts hardy
in press -

Lectures, BR. at Signac





In pack all
around Propane
station is fine
level + many acre
in Extent & many more needed
by propane

Hardy any horses around
Propane station all farms

To stick Mylar into plate
for STB 7-0 use precipitate of
Benzoate in presence
Calc mg with organic
finely Crushed + dissolve the
Bro Ag, will an heat go
anhydrous + act as a
Cement,

On the Little Squaw RR
at Pompton Plains station
Ideal on left hand side going
to Pompton 1/2 mile behind
right back of village probably
Expensive. 400 ft wide —

On Greenwood Lake
at End Midvale
Town large flat
plat on lower both
sides River right near
its the End towards
lake

Treat the squeed $FeSO_4$
Contains $MgSO_4$ squeed
to oxide with $2H_2SO_4$
to dissolve out the
Magnesia to make the
Ferric Oxide more
porous

Make Makes Fe2O3 Very Porous

Food [illegible] Lay slabs of

Squeed Fe_2O_3 between the
perforated 005 or 008.
Wire in, secure X by rods
Remove & stitch all over by
sewing machine & thread
of 3 or 4 002 wire or sewing
cotton, then Repress — the natural
swell in Potash will
tighten

Drummond's wkg stuff

OK process for recovering Nickel from discarded wkg Moulds —

Moulds

1/2 pint. w/ 5% Solution of H_2SO_4 kept for several days at temperature of 120 to 130 Fahr. Resulted in total removal of the Nickel giving a $NiSO_4$ 99.8 pure

(Written all for pleasure)

Doughlenty tells me all the Copper electro refiners soon get their electrolyte loaded with Cu + Ni when get too much Ni they evap + sell it to Ontario Cop Co — get lot of Telluri + tash of chemicals

Amatens, 40 V — w

20 V section 1 tube 2 pkts — Cheap —

Kenilworth

branch road to Ancy Can Co Munition plant, now abandoned large — on Nat Elevator R.R. plenty more fill land Galvan factory & Village track north Thront, seems as if plenty all round

dident go to other ends of Munition fac

9 miles west of KR —

Good flat 30 to 50 acres
perhaps more across
Track at Reform School
Railway Trolley right
there, in fact there
appears 40 to 50 acres
available on both sides
perhaps more fairly
high

At Avonel – Pa RR near
the reform School
Seems to be Lots of Cut land
there – big steel equipment
factory there

Main line PRR after
leaving Melrichen
Cross over bridge turn
to right Come to Inn
on road turn right to block
small road left Come
to PRR, Seems to

Considerable fairly
flat land before you
Cross –

Try Acetate Soda in
Alkaline Sol to decrease
Chg Voltage. Salt
+ other good H absorbers

Try in NaSO4 acetates of
Metals higher in Electrolytic
Series than Al – try acetate
Al Ce Th Ur Mn
It may be Ni metal + the
reactant or acid is deposited
at Cathode simultaneously
$NiNO_3$ – gaseous the co insolubility
oxidized by the to NO_2 + O_2,
forming $NaOH_2$
With $NaSO_4$ + Acetate Mg
Ni deposited + SO_3 forms
$MgSO_4$ liberating Acetic
acid

Working with both Nickel
and Zinc anodes
Cathode simultaneously

See if Acetate No
or Mg Hard Vulcanos
of Acetate bowtgro
Tanyuro Vulcanos

Dalley Make a
disk of Chalk
10% Cotton flock
& Cumerone
Resin press
hard disc print
Schedule to
Saw press oil
for battery make
it thin as possible

Get samples of porous paper
White blotting + unsized
thick white paper for
Ford battery

Dimmeddie Copper ferrules
pipe Elbows

Get Veneers all kinds wood
shape them & test in NaOH
20% 140° Fahr Time test

Try the 2 Ketones in Plating

Try Cotton duck to seperate
thin layers molded blotting
paper

Get some Reg 72 mix
for Ford a

get some sheet 6 X 7
Ni plated + welded with the magnesium
005 - + some 1/8 plated for
outside

(115)

Try plating Cadmium
$CdSO_4$ + acetate
Mg — also $CdSO_4$ +
acetate Cd,

Try $FeSO_4$ + acetate Mg
" " + " Iron
plating —

Acetate Mg 6 + Zn Cu
Cd, Fe Co, Pb, Sb Bi
Sn. Mn, Al,

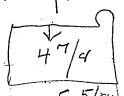
Rubber plating Tanks
hold 16 litres

Hand Rubber pump 5 gal
Mini - plant 50 lbs pressure
per inch ½ HP
Belt driven $135
Motor driven $225.

4.26 gal

Ford Lead

6P7 neg plates



1 inch
10 thick

300 neg plates (18 grids) 324 opp in Rollers
Expanded

It looks to me best way
to raise voltage on
Lelands is to have
more surface on
CuO plate, make
tests,

Not [illegible] required in flake
Cranes per Crane +
Output [illegible] Crane of flake
for A4 — [illegible] ½ [illegible] dollar
power plant.

Put Selenic acid in Cu ~~pl~~
$NiSO_4$ - plate heavy density 5 sec
wait 10 seconds for Se act
then 5 sec plating —
See if Cobalt sep out,

See if $NiSO_4$ + $CuSO_4$ -
plate with low Voltage for
Copper & great Voltage to
plate Ni + if Cu deposit
separate, The Cu is many
4 to 6 times weaker than $NiSO_4$
with low V only Cu plates
out with great Voltage
Ni will only 1/6 the of Cu
plates out, ~~Ni~~ bad
plating try Acetates
Mg Mn Zn in addition
use Carbon anode

A 60%

May get this to work

try formate, propionate
Butyrate Lactate, Glycollate
Oxalate Malonate Succinate
Tartrate Citrate, of Na + Mg
Oleate + higher fatty acids
Acetylated compounds +
Aldehyde compounds

Nickel Potassium Cyanide reduce
at Cathode to sub oxide
Nickel — non conducting

Cycle of Plate plating

June 1st wash	.15	min
wash	.11	"
Wash Copper	.06	"
In Copper	.05	"
Original Coat Copper	.50	"
Out of Copper	.055	"
to wash	.055	"
wash	.11	"
to Nickel	.07	"
out to Nickel	.08	"
Nickel plate	.35	"
out nickel	.055	"
to wash	.055	"
wash	.11	"
to Copper	.06	"
in to Copper	.05	"
Copper & Color	.25	"
Total Cycle	1.30	"

Average labor time 250 lampers
2 hours 45 men
stopping time 5 hours
V Cu 35 - Amp 250
V Ni 110 " 850

Sheet is 21 X 36 .008 Thick

The Voltage & Amperes are for 10 Drumm in series -

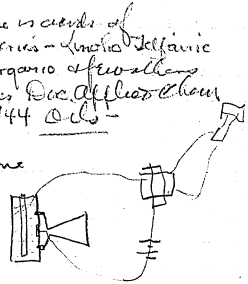
Amount of hydrogen absorbed | are reduction by H

Fe.	9 to 19
Ni	17 to 18
Cobalt	59 to 153
Mg	1.4
Al sheet	1 to 2.7
precipitated Pd	37 to 46

Acetic Series Acids
Acetic, Butyric, Valeric, Caproic
Caprylic Capric Lauric Myristic
Palmitic Stearic Arachidic
Behenic Lignoceric
Acids of the Acrylic or Oleic
Tiglic Hydroxyl Oleic
Rapic Erucic

Then there is cards of
Lindic Series – Lindic Galvanic
Electromagnetic & Frowathers
Thorpes Dic. Applied Chem
page 744 Oct –

Scheme



polarization of metal
due on insulator
Dropping, Voice shakes
& deposiangers

Making Antimony see
Schnabels – mat 56 –
see " a process for separating
Ni to + Cu by roasting –
& marked by sympathetic
sort drill No 1

Sept 12 1919
Recomposition of Ni tension
to 2.09 Volts for sulphate
1.85 for chloride

Mention in patent that
acetic acid alone ~~acid~~ attacks
the Ni + only Undesirable
obtained but if an acetate
is used Ni Sulphate very billiant
& OK – also Ni Ammon Sulphate
not good as ~~ammon~~ salt doesn't
permit high density properly
rad

Try head balling like
our Ni Fe for Fone
using Rubber for
pressure or glass &
Rubber ball for
springs –

also try Ni + Zn
in Electrolyte containing
1/2 saturated ZnO
& an acetate NaAcO

See if with Reg Na tubes
in clear NaOH 20%
1/2 saturated Zinc
Can plate out Zinc
also acid acetates
to see if absorb it
& improve plating

Get explanation of Shales
dept sale - Something wrong

Haas Moore Jones and
40 questions for Cook
maker - Collo Manufacturer

Ford Bailey Separators
Paper Cloth - Asbestos
Rubber Sponge Hard Rubber
fibres made into cloth
Upon wire cloth Soda Fe_2O_3
Perforated wood + rubber
pins - fibrous Gypsum paper

Sept 14 1919
floated powders pulled together
to make a thin porous sheet
floated NaOH, on steel Na plate
then float Fe_2O_3 or CaO MgO -
Then Iron mix - then steel wire
on -
prehumorized Carbon paper
before shrinkage to Carbon
see if stable in NaOH
Squirt rubber into fibres in
Chl Sulfur + make Cloth

See if with Ni Electrodes
in a Sol of Acetate Mg also
Na will give higher acid
also use Acetate Na no
NaOH sol also use
Sulfate Soda + Acetate Na
+ Mg et -

Arrange time tests hot 120 +
Cold 70 NaOH 20% + 10%
NaOH, for dif papers Cotton Wood
+ Linen fibers + Parchment paper

also Cotton cloth, writing paper, Asbestos fibrous gypsum, glass wool, slag wool felted, put in sections so one removed every month for test,

Try 250 cc $MnSO_4$ + 6 gr Acetate Mg + Na + 5 cc $CuSO_4$ with Copper + the Oxides to keep up Conctn of Cu

Speak to Hardy about Specific Claims for process against a Mechanically Electrolytic — ditto re Alkali — as against [illegible] process for trade Electrolytic x c.2 Wade

p 119 also mention that the small amount of Electrolyte is sufficient as Mulcher's lead battery the Electrolyte [illegible]

also Wade p 109

Try depositing Zinc on Zn in 1/2 sol Dicalc Lenoch using Ni Tube — with Acetate Na see how many hours by previous Pg — amp

Cellulose in head Cathode oxidize by PbO_2, Try coating the paper 1st with PbO — then $BaSO_4$ — This will keep paper away from the peroxide

Res of H_2SO_4 at 5% sol is almost as low as 20% sol, Think same is Case with Alkali think 10% KOH strong enough or 7 @ 8% NaOH for Jon

Mumbert - Have we received
price on Bates Machine
How much it costs
are we making a profit

No. 04½ red Gallery green
floated on blotting paper
2½ X 4 5/4 — 11.6 inch
2.5 calipers .012
3 .014
5 .017

2/2 gms is 215 Milg per inch one
side — 430 per plate both sides

20 P 20 N — 2½ gms Mitt on
side will give compared to
A 4 — 20 amphours —
That is enough —
Day cut out 250 Milg per
inch A 400 Milg "

While Hatcher about
Zinc paint —

Salol. 3 Hours

2 -	Edge up	6th bend
4	"	—
8	"	5 "

Citrate Lithia 3 Hours

2 qr	OK	13th bend
4	"	20 "
8	"	15 "
12	"	10 "
16	"	13 "

Citrate Mg - 3 Hours

2	OK	15th bend

Acetate Magnesia 2 Hours

2	OK	8th bend
4	OK	10 "
12	OK	4 "
16	Edge up	3 "

Citrate Soda 3 Hours

6	OK	2nd bend
8	OK	5 "
2	OK	5 "
4	OK	8 "
12	Edge	—
16	OK	8 "

Acetate Nickel 4 Hours

2	OK	3rd bend
4	"	3 "
6	"	4 "
8	"	10 "
12	"	8 "
16	"	10 "

Citrate Nickel 3 Hr

2	Edge up	6th bend
4	peeled entire	—
8	OK	4
12	OK specs	—
16	lifted	4

KIJ

Make 4 hour test on Acetate Lithia, as Citrate Ni. is best of all –

Think I have made a mistake go over book again & make more careful table of results

Try colloidale Magnesium hydroxide in a dilute solution of Neutral $NiSO_4$ and Ammonium Chloride Cause of H is fed and given off insitu at the point of deposition of the Nickel

Also try Nickel hydrox made and agitation

Going over all the Ni Plating Experiments I find Sept 17 1919

That 2 Electrolytes are far best.

2-4-6-8-12-16 Citrate of Lithia 3 hours 100 ma per inch All OK. average number of bends before breaking was 14 –

The next best and most practicable is Acetate of Nickel 2-4-6-8 12-16 at end 4 hours 100 ma per inch all OK average number bends before breaking 6.3

With this solution its acidity can be corrected in fallen press by Ni hydroxide

Make many weak acid salts of Ni to put in Sulfate Ni
Those that dont hydrolyze in dilute solu electrolyte

Only metals according to LeBlanc who says decomp of water requires 1.03 V multiplied by 1.63. as always alloed +H.
That the metals below H 1.03 so Au Pt Ag Hg Cu Bi Sb As + Sn.

Neumann Electromolyserves Mg Al Zn Cd Fe Co Ni Pb H Sn Cu Hg Ag Pt Au. Old style but not Chrom at no H
depends on the solution

Hanley — After a test charge at 100 ma for 2 hours — then put on discharg & when it gets to 140, Run amp up till it goes to 1 Volt & note the amperes only hold for 2 or 3 seconds. Then go ahead with discharg req who will give us discharg rate in amp at 1 Volt, & tell us what cells will do —

Drop Al Mg Fe Cu Ni Zn Pb, brass. m.
Aqueous sol selenic acid 1st to see if film formed permits stripping
2nd effect will give various Colors.
3rd effects protection to say iron sheet under adverse conditions

(125)

Each Rubber bath holds
4.26 gals 150 Baths
639 gals – should be
33% Excess for circulation
& filtering – 210 gals –

Total. 849 gals

24 oz Nacetate per liter
90 grams per gal –
approx 17 lbs acetate
Nickel –

Look for out amount of
$NiSO_4$ Crystals necessary

Make 425 gals of solution
$NiSO_4$ and 8½ lbs Nickel
acetate –

Pouch. Cover in Ford Cell –

1 = Long fibre paper – Veneers up and
2 = 003 paper mx one side as Cellar
Then thicker paper Fz 1 side
Ni other side – No filler
3 Precious treatment with
20% alkali hot + wash +
dry + press
4 Float mix on – screened to
fine size, dried hydroxide
that holds shape –
5 Crystalized $Ni(OH)_2$ – Loth.
6 Assemble moist, screws set
so just hold together as
swelling by water –
on pulling in let it swell –
then form then final
tightening
7 free border around

8- Phyrthin steel

9 ideuncle with Fe on one paper & NiOH on other preferable to Fe & Ni on opposite sides of paper. Wicker

10 = Outside plates bottom Lugs increased area insulated by rubber & bottoms of Rubber to prevent Coupling Cair — Wood could be used.

11 = floating inert metal powder like MgO or BaSO4 over the previous mix prevent Explosion of gases

12 Put on as strips to permit escape of gas

13 = instead of strips use perforated paper, holes opposite but as no mix at holes will not cross.

13 - In floating paper with mix put a stenail on top of paper, float + left stenail. This leaves streaks on paper free of mix — hard Fe + Ni Watch When put together + .010 Ni .014 Fe, used + .006 paper for Each, The long fibre will prevent the flakes from swelling much + there be .028 thick where mix is + only .006 where none + at Crumpt scroll so gas will be prevented from passing out freely

Whale Epide 3 cells found
Total lost 40 lbs

Pr Mix wood weigh 9½ lbs

Thickness of main plates Ford Electric
015 – 79 grams, or 5 grams per 001
Each bolt & spring 1.95 grams –

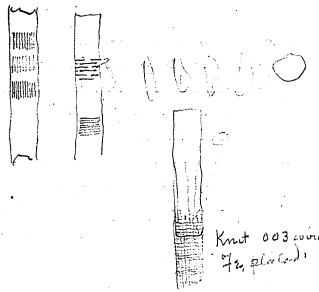
Pr plates 007 – Each weigh 35 grams
140 plates 1400 grams
16 bolts 3.12 grams
Pr & Ni Mix 40 plates 480 grams
General Brewster
Can't parts

Take Reg Ni mix
put in 20% HaCOH,
with Reg Lithia
use flasks with reflux
& put on hot plate

Keep time these 2 or
3 flasks, once a week
remove enough for
2 small test cells
wash free dry & have
made up – Then
to Experiment on dehydration

18 Cranes
4455 lbs Ni Cu sheet per week
50 hours. Total consumption
current 40000 KW.
Current for plating only
38000 KW H – power 2000
per lb of Cu Ni sheet 8.98 KWH.

A 4 Ni tubes total surface
exposed 427 inches –
Open to electrolytic 69 inches
only This is pretty small



To prove that acid radical is given off - use 250cc $NiSO_4$
4 grms Nitrate Soda +
6 grms Acetate Nickel the
Ni from decomposition of the
Acetate by the NO_2 should
take care of Nitric + unless
at hydroxyl of Ni appears
on Chloride, Ni will be deposited

J V Miller put 2 lbs of
Reg Nickel in pot with
oz reduction by H + send up

Speed of plating Wheel
for flake should be 2.7
times longer -
Keeping Cu 25 Ma +
Ni 300 Ma

This will give same thickn
of Cu + Ni as Battery Co

Wheel 2.7 times present
size — say 2½

Take several Ni tubes
of press fit made
hydraulic dry + also
wet with NaOH after soaking
several hours -

Also have some tubes made
Cu's outside, Road + without
fuelling rings on ground off
Cu's completely fed on
rings + test.

L Oil, see of Carbonate
Nickel with acetic ient
best way to make
Acetate Ni –

Wonder if using Carb Ni
in tube of fuelling in
Nitrate, ~~[illegible]~~ Carb Na
would swell or not
+ not of – in place
of Hydroxide,
also Ferrous Carbonate
in ½ pocket –

get Chromic out of NaOH
KOH — Silver anodes
Dissolve Chromic + double
over + over again → Oxide Silver
Carb org –

Use ~~[illegible]~~ Electrodes
~~+~~ smallest amount of liquid
Have Cu Electrode corroded
+ no $CuSO_4$ in solution –

3/4 ~~[illegible]~~ 1/4 ~~[illegible]~~

Square Centimeter	0.155	sq inch
" Decimeter	15.500	sq inch
Millimeter .001 Meter	0.03937	inch
Centimeter .01 "	0.39371	inch
Decimeter .1 "	3.937	inch
Meter	39.370	
1 gal USA	3.785 Liters	

C1351

~~Ask GM to figure out~~
~~Cost of his Nickel deposit~~
~~per lb of Metal~~ —

Perhaps CP Nickel strip
anode in NaOH well
from Chl Ni + precipitate
NiOH with chlorine tangled
in — Or an emulsion of an
Easily Chlorinated hydrocarbon

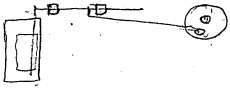
Try plating Cadmium
CdSO4 — 250 cc
8 grms Acetate.
Cd — also another
acetate Mg

ditto Iron
" Zinc
" Cobalt
Tin
~~Lead~~

ditto Sb —

Flake Out.
250 cc NiSO4 —
8 grms acetate Ni
+ 3 cc CuCyKCy

Fred ott Put stirrer back
of the anodes —



also make this — shiny

Lubest sol try 1 drop of
detailed Dimethylglyoxime
see if improves — make it light
blue drop + yet increase it

Try Conc. acetate Nickel
+ 6 grms Acetate Lead —
see if Ni depositing O/K
+ note crude deposit —
also make acid with
acetic after 1st Trial —

Cupric Chl MP 498° C (932° Fahr)
Cuprous Chl " 434 C

If the new succeeds in making
Syrupy Acetate Magnesia. Use
10% this in CuO plate + ignite to
decompose it. Wholly free of
Chlorides MacOtt & Sharp

Copper Ferrocyanide is soluble
Potassium Citrate —

Meadows ~~after~~ after Calculation
of Screw ~~for~~ 6 coils for
Condition

5 X 6 30"

- 10 P 10 Neg

- 300 inches 1 side 600 both

sides, 600. $\frac{1}{1000}$

300 2'
150 4
75 8
37.5 16
18.75 32
9.37 64
4.68 128
2.34 256
1.17 512

1" X ½ inch in $\frac{1}{1000}$

4 - ½ X 1"
1500 MA hours
$\frac{1}{1500}$ thick

4 at sharpest
$\frac{1}{1000}$ thick
$2\frac{1}{2}$/mm 10 clears

3 mm 30
6 " 15
12 7.5
24 — 3.75 1122
48 — 1.87 seconds
96 — 56.

3600 / 1000
1800
900
360
180
36
18
54

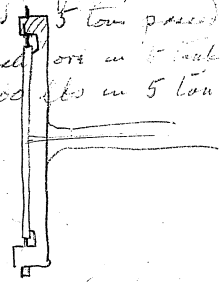
20 lbs water 1 lb Coal

20.000 lbs to Ton
1000 lbs Coal – $3.00 –

25 cent. 300 lbs, One cent.
lb,
50. 1200 (20 c
17

1000. 20c
10 gallons
1 Coal Scuttle
1 " Heat
1 Coal Scuttle
2 Coal Scuttles

15 tons HO total passed
5 tons passed off 1st pass
2nd + 3rd 5 tons passed
Hence fuel on 1st Trak.
hence 300 lbs in 5 tons



1 ton on each 1 Ton HO –
added ton to 1, withdrawn
added to 2, so on
5 tons passed leaving
5 + again 15 tons
total passed,

Dec
106 000, Cabinet
bal Dec 31 1919
Sure no doubts —

Dykman statement
7th July 1919
12000 in Sept
9000 in Aug

[158]

92
4
368
70
25.7

12
24
48
40 24
45 288

1200
960
1080

15 | 288 | 18
14
138

50 –

65 –
30
95

2000
1000
3

3000
150

Dykes

21
36
126
63
63

12000 bell!

44 | 110 | 2.5
88
220

144

756
20
36

57

2.5
3
7.5

183
3
9.15

60 | 110 | 1.83
60
500
480
20

1.75
4
7.00

1.75
4
8.75
7.25
1.50

150
4
600

150